REMARKS

Claims 7 and 41-64 are pending in this application of which claim7 is amended and claims 41-64 are new. Applicants respectfully request entry of the amendments to claim 7 and reconsideration thereof, and entry and consideration of claims 41-64.

Rejections of the Claims

Claims 1-6, 11, 19, and 20 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Claims 1, 3, 4, 6-8, 23, and 24 have been rejected under 35 U.S.C. §102(b) as being anticipated over Cui et al. (Science, 293, August 2001, 1289-1292). Claims 2, 5,10-20, 26-31, 34-36, 39 and 40 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Cui et al. in view of Krstic et al. (Electronic Properties of Novel Materials-Molecular Nanostructures, 2000, pp. 367-370). Claims 2, 10, 21, 22, 37 and 38 have been rejected under 35 U.S.C. §103(a) as being unpatentable over either Cui et al. alone or in view of Krstic et al. and in further view of Issachar (USP 5,156,972). Claims 9 and 25 have been rejected under 35 U.S.C. §103(a) as being unpatentable over either Cui et al. alone or in view of Krstic et al. and in further view of Kong (Science, 287, January 2000, 622-625). Claim 32 has been rejected under 35 U.S.C. §103(a) as being unpatentable over either Cui et al. alone or in view of Krstic et al. and in further view of Holm-Kennedy (USP 5,466,348). Claim 33 has been rejected under 35 U.S.C. §103(a) as being unpatentable over either Cui et al. alone or in view of Krstic et al. and in further view of Nagata et al. (USP 4,913,792).

Rejections under 35 U.S.C. §112, Second Paragraph

Claims 1-6, 11, 19, and 20 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite. In view of the cancellation of claims 1-6, 11, 19, and 20, these rejections are now moot.

Rejections under 35 U.S.C. §102(b)

Claims 1, 3, 4, 6-8, 23, and 24 have been rejected under 35 U.S.C. §102(b) as being anticipated over Cui et al. In view of the cancellation of claims 1, 3, 4, 6, 8, 23 and 24, the rejections of these claims are now moot.

Regarding independent claim 7, the claim has been amended to recite a sensor comprising a nanoelement and two electrodes contacting the respective ends of the nanoelement, where one electrode includes a surface layer including Pd. While both Cui et al. and Krstic et al. teach metal electrodes, neither teaches or suggests a Pd surface layer on the electrodes. Although Kong teaches metal electrodes comprising a Au layer over a Ni layer, Kong does not teach or suggest a Pd surface layer. Applicants note that Kong does not provide a justification for the Au layer, but infer that it is meant to provide an inert and protective coating over the more reactive Ni layer. As Pd has been a more expensive metal than Au, there would be no motivation for one of ordinary skill in the art at the time the invention was made to have turned to the more expensive Pd to replace the Au layer of Kong.

Rejections under 35 U.S.C. §103(a)

Claims 2, 5, 9-22, 25-40 have been rejected under 35 U.S.C. §103(a) as being unpatentable over either Cui et al. alone, in view of Krstic et al., or in view of Krstic et al. and in further view of either Issachar, Kong, or Holm-Kennedy. In view of the cancellation of claims 2, 5, 9-22, 25-40, the rejections of these claims are now moot.

New Claims

New claims 41-45 depend from independent claim 7 and are patentable for at least the reasons provided above with respect to claim 7.

New independent claim 46 recites a bio-molecule sensor comprising a pair of electrodes contacting ends of a nanotube, one electrode comprising a surface layer including a molecule with an affinity for the bio-molecule. Cui et al. teaches Si nanowires that are functionalized with biotin for use as biomolecular sensors. Nothing in Cui et al., however, teaches or suggests functionalizing the electrodes rather than the Si nanowire.

New independent claim 50 recites a sensor comprising a nanoelement, a pair of electrodes contacting ends of the nanoelement, and a protective layer over the nanoelement. None of the cited references teaches or suggests a sensor where the nanoelement is protected from the environment. To the contrary, both Cui et al. and Kong teach away as both references teach that the nanoelement, a Si nanowire in Cui et al. and a nanotube in Kong, must be exposed to the environment for their respective sensors to function.

New independent claim 58 recites a method of sensing a specific molecule comprising providing a sensor including a nanoelement disposed between two electrodes, exposing the chemical sensor to an environment including the specific molecule, and measuring a change in a work function of one of the two electrodes in response to the environment. None of the cited references teaches or suggests measuring a change in a work function of an electrode in response to the environment.

CONCLUSION

All pending claims are now allowable and Applicants respectfully request a Notice of Allowance from the Examiner. Should the Examiner have questions, the Applicants' undersigned attorney may be reached at the number provided.

Respectfully submitted,

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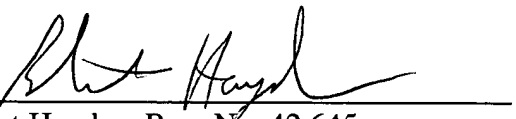
Date: October 20, 2004 By: 

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